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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREW E. SEMAN, JR., NATHAN CRUISE, DANIEL J. WHITE, DAVID A. CARRIER, DANIEL C. BROTTO, DANH T. TRINH, and FUGEN QIN

Appeal 2016-003083
Application 13/587,107
Technology Center 2800

Before KAREN M. HASTINGS, MICHAEL P. COLAIANNI, and DEBRA L. DENNETT, *Administrative Patent Judges*.

HASTINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants,[1] seek our review under 35 U.S.C. § 134(a) of the Examiner's Final decision rejecting claims 1–16 under 35 U.S.C. § 103(a) over the combined prior art of at least Perelle (US 5,677,613, issued Oct. 14, 1997), Hiratsuka et al. (US 5,680,027, issued Oct. 21, 1997, hereinafter "Hiratsuka"), and Huelss (US 7,085,338 B2, issued Aug. 1, 2006).[2]

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[1] The real party in interest is Black & Decker Inc. as stated by Appellants. (Br. 3).

[2] While the Examiner applies additional references to various dependent claims (see, Final Act. 7–11), Appellants only present arguments directed to claim 1 (generally Br. 9, 10).

We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

Independent claim 1 below is illustrative of the subject matter on appeal (emphasis added):

1. A method for monitoring the voltage of each of a plurality of cells of a battery pack, said method comprising:

sequentially sensing a node voltage at each of a plurality of nodes of a monitoring and balancing circuit, each node connecting one of the cells to a respective one of a plurality of monitoring and balancing (M&B) sub-circuits of the monitoring and balancing circuit;

receiving the node voltage from each of the M&B sub-circuits at a measurement node common to each of the M&B sub-circuits, where the common measurement node is coupled via a single analog to digital converter (ADC) to a single input channel of a battery control unit and a resistor is coupled between the measurement node and ground;

monitoring a voltage potential for each of the plurality of cells in a battery pack utilizing the single channel of a battery control unit within the battery pack by receiving the node voltage signals from each of the M&B sub-circuits during a discharge mode, at a first sample rate, via a single discharge mode ADC coupled to a common measurement node, the discharge mode ADC interposed between the battery control unit and each of the M&B sub-circuits; and

receiving the node voltage signals from each of the M&B sub-circuits during a charge mode, at a second sample rate that is slower than the first sample rate, via a single charge mode analog to digital converter (ADC) coupled to a common measurement node, the charge mode ADC interposed between the battery control unit and each of the M&B sub-circuits;

discontinuing current flow from battery pack when the

voltage potential of any cell is determined by the battery control unit to be below a predetermined minimum voltage during discharge of the battery pack; and

reducing the voltage potential stored in any one or more of the cells when a voltage differential between the respective one or more cells and any other one of the cells having a lesser voltage potential is determined by the battery control unit to exceed a predetermined maximum differential during charging of the battery pack.

ANALYSIS

Upon consideration of the evidence on this record and each of Appellants' contentions, we find that the preponderance of evidence supports the Examiner's conclusion that the subject matter of Appellants' claims is unpatentable over the applied prior art. We sustain the Examiner's § 103(a) rejections essentially for the reasons set out by the Examiner in the Final Action and the Answer.

We add the following primarily for emphasis.

It has been established that "the [obviousness] analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Likewise, it is also well settled that a reference stands for all of the specific teachings thereof as well as the inferences one of ordinary skill in the art would have reasonably been expected to draw therefrom. *See In re Fritch*, 972 F.2d 1260, 1264–65 (Fed. Cir. 1992).

Appellants' only argument is that Perelle does not teach or suggest "sequentially sensing a node voltage" as recited in claim 1 (Br. 9, 10).

Appellants' arguments are not persuasive of reversible error. The Examiner explains that, contrary to the Appellants' position, Perelle does indeed teach sequentially sensing a node voltage as recited in claim 1 (Ans. 2, 3). The Examiner states:

> In response to Appellant's argument, Perelle teaches sequentially activating various interfaces (5) connected in series (Par (*sic*, Col.). 3, Lines 45-48). Each interface (5) taking into account only the first control pulse it receives (Col.3, Lines 49-57) and sending measurement signals successively (based on the control pulses) to a measurement transducer (14) through a common node (Fig.1). Therefore, given that the interfaces (5) are sequentially activated and the common node precludes gathering measurement signals at the same time, the node voltage is sequentially sensed.
>
> . . .
>
> In response to Appellant's argument, Perelle teaches a monitoring and balancing circuit (5) measuring a voltage across an associated battery (2) (Col.2, Lines 5-7); and a clock signal (17) successively (sequentially) activating the monitoring and balancing circuits (5) through an activation means (18) found in each monitoring and balancing circuit (5) (Col.3, Lines 45-57) (Fig.1).

(*Id.* at 3).

Appellants have not shown reversible error in the Examiner's de facto determination that one of ordinary skill would have readily inferred that Perelle encompasses sequentially sensing a node voltage as recited in claim 1 (*see*, *e.g.*, Ans. 2, 3; no responsive brief has been filed). *KSR Int'l,* 550 U.S. at 418; *see also id.* at 421 ("A person of ordinary skill is also a person of ordinary creativity, not an automaton."); *Ball Aerosol & Specialty Container, Inc. v. Limited Brands, Inc.*, 555 F.3d 984, 993 (Fed. Cir. 2009)

(Under the flexible inquiry set forth by the Supreme Court, the PTO must take account of "the inferences and creative steps," as well as routine steps, that an ordinary artisan would employ.)).

Appellants have also not directed our attention to any persuasive reasoning or credible evidence to establish that the Examiner's claim interpretation is unreasonable, nor to any portion of the Specification that limits the definition of "sequentially sensing a node voltage" to exclude the type of circuit operation found in Perelle as pointed out by the Examiner. *In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007) (If the specification does not provide a definition for claim terms, the broadest reasonable interpretation consistent with the Specification is applied.).

Accordingly, we affirm the Examiner's prior art rejections of the claims under 35 U.S.C. § 103(a) for the reasons given above and presented by the Examiner.

DECISION

The Examiner's § 103(a) rejections are affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1).

AFFIRMED